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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/577,549

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EXAMINER

BLACKWELL, GWENDOLYN

ART UNIT

PAPER NUMBER

1794

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DELIVERY MODE

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/577,549	Applicant(s) SCHUISKY, MIKAEL	
	Examiner GWENDOLYN BLACKWELL	Art Unit 1794	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 05 January 2010.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-7 and 9-27 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-7 and 9-27 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 28 April 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date <u>1/5/10</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claim 1-7 and 9-27 are rejected under 35 U.S.C. 103(a) as being unpatentable over United States Patent Application Publication no. 2004/0229031, Gell et al in view of United States Patent Application Publication no. 2004/0060967, Yang et al as applied to claims 1 and 12 above.

Regarding claims 1, 3, 7, 9, 11, and 20-22

Gell et al disclose a yttria stabilized zirconia (YSZ) coating formed on a stainless steel substrate, (page 6, section 0076; example 1, page 7, sections 0077-0079). Yttria is contained in the oxide in the amount of 7 wt%. The surface of the substrate may have a surface roughness greater than or equal to about 0.1 μm , which would include an amount of slightly less than 0.1 μm , (page 3, section 0041). The coating can be part of a solid oxide fuel cell (SOFC), (page 6, section 0071). Gell et al does not disclose an additional layer of zirconia formed on the first zirconia layer on the substrate.

Yang et al disclose a metal part, such as ferritic stainless steel, having a ceramic coating formed thereon, (pages 1-2, section 0012). The ceramic coating is a coating of yttrium stabilized zirconia formed directly on the substrate, (page 3, section 0025), or bonded to the substrate

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through the use of a bond coat, (page 1, section 0011). An additional layer of yttria stabilized zirconia can be added to the coating system, (page 3, section 0025).

Gell et al and Yang et al disclose analogous inventions related to the use of YSZ on a stainless steel substrate wherein the coating can provide electrically insulating properties and be used as part of SOFC. It would have been obvious to one skilled in the art at the time of invention to modify the substrate of Gell et al with the additional layer of YSZ as demonstrated by Yang et al in order to provide additional insulative properties and/or improve the stress distribution of the coatings on the substrate, (Yang, page 3, section 0025).

Regarding claim 2

When the structure recited in the reference is substantially identical to that of the claims, the claimed properties or function are presumed present. As the prior art exemplifies Applicant's claimed structure, the claimed physical properties relating to thermal expansion would be expected to be present.

Regarding claims 4-7 and 18-19

The FeCrAlloy has a chromium content of 22% and a thin sheet thickness of 2 mils (50.8 μm), (Yang, page 5, section 0054).

Regarding claim 10

The zirconia coating has a thickness of 0.5 mil (12.7 μm), (Yang, page 4, section 0045).

Regarding claim 24

The bond coat material can be MAl (M= Fe, Ni, Co) or MCrAlY (M= Fe, Ni, Co), (Yang, page 1, section 0011).

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Regarding claim 12

A second metal layer can be placed over the YSZ layer having the same materials used in the bond coat, such as MAI (M= Fe, Ni, Co) or MCrAlY (M= Fe, Ni, Co), (Yang, page 3, section 0027).

Regarding claim 13

Yang et al does not specifically disclose the thickness of the metal overlayer.

However, the coating must have some thickness as it is present and Yang et al disclose that the coating is formed in the same manner as the bond coat which would not be a thick layer. Absent a showing of criticality with respect to thickness (a result effective variable), it would have been obvious to a person of ordinary skill in the art at the time of the invention to adjust the thickness through routine experimentation in order to achieve a metal overlayer having the optimal thickness in order to bond the second metal part to the first without degrading the performance of the electrochemical device such as a solid oxide fuel cell, (page 3, sections 0026-0027). It has been held that discovering an optimum value of a result effective variable involves only routine skill in the art. In re Boesch, 617 F.2d 272, 205 USPQ 215 (CCPA 1980).

Regarding claims 14 and 25-27

“[E]ven though product-by-process claims are limited by and defined by the process, determination of patentability is based on the product itself. The patentability of a product does not depend on its method of production. If the product in the product-by-process claim is the same as or obvious from a product of the prior art, the claim is unpatentable even though the

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prior product was made by a different process.” *In re Thorpe*, 777 F.2d 695, 698, 227 USPQ 964, 966 (Fed. Cir. 1985) (citations omitted). *MPEP* 2113.

Regarding claims 15-16

As the metal thickness falls within Applicant's claimed range as well as the coating thickness, it would be expected that the coated metal is flexible. The coated metal can be used in solid oxide fuel cells, (Yang, page 1, section 0003).

Regarding claim 17

As the sheet metal has a thickness of 50.8 μm , (Yang, page 5, section 0054), and the coating has a thickness of 12.7 μm , (Yang, page 4, section 0045), the total thickness can be 63.5 μm .

Regarding claim 23

The coating can have a thickness in the range of 1.0 μm to over 5 mm, (Gell, page 1, section 0014). It would have been obvious to one of ordinary skill in the art at the time of invention to have selected the overlapping portion of the ranges disclosed by the reference because overlapping ranges have been held to be a prima facie case of obviousness. *In re Malagari*, 182 USPQ 549.

Response to Arguments

3. Applicant's arguments with respect to claims 1-7 and 9-27 have been considered but are moot in view of the new ground(s) of rejection in light of Applicant's claim amendments.

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4. It is noted that Applicant contends that Gell does not teach the surface roughness as presently claimed. Gell although teaching a lower limit of greater than or equal to about 0.1 μm , teaches a range that encompasses an area slightly less than 0.1 μm as Gell modifies the amount of 0.1 μm with the term “about”. See *MPEP 2144.05*.

Conclusion

5. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to GWENDOLYN BLACKWELL whose telephone number is (571)272-5772. The examiner can normally be reached on Monday - Friday.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jennifer McNeil can be reached on 571-272-1540. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/GWENDOLYN BLACKWELL/
Primary Examiner, Art Unit 1794